Nikon
MIRRORLESS
REINVENTED

THE NEW OPTICAL GATEWAY TO NEXT-LEVEL CREATIVITY

Z is year zero for the imaging world.
The Nikon Z mount system is about potential. It is about taking the lead in the mirrorless camera world and redefining possibilities — both technological and creative. It is about building a new platform for image makers that can grow in pace with their aspirations and let them work and express themselves in fresh new ways.

The secret to great imaging is light. With a century of experience in optics, Nikon knows this well. NIKKOR F lenses are the result of a long tradition of accumulated optical expertise, drawing in light in the purest form possible, with minimal distortion. As a result, they deliver highly accurate subject information to the sensor, enabling high-resolution images with real depth.

The Z mount's 55-mm inner diameter and 16-mm flange focal distance clear the way for a new generation of outstandingly high-performance lenses. This new system lifts optical performance and image quality to new heights. It also enables development of a wider variety of lenses, faster apertures, and unique focal lengths, opening up a wider range of photographic expression. Retaining access via an adapter to the extensive NIKKOR F lens legacy, the Z mount's breakthrough engineering makes it the foundation for a new generation of lenses that excel in speed, sharpness and accuracy, blazing a new trail in lens capability.

The Z series embodies Nikon's long-standing expertise in every aspect of a balanced camera system. From image-processing ingenuity to robustness and operability, Nikon is uncompromising in providing photographers with the best possible experience in the widest range of shooting scenes, all within a compact camera system.

The Z mount system expands Nikon's commitment to the future into the mirrorless world. With groundbreaking optics at its heart, it helps users unleash fresh creativity by investing in a path of ever-greater image quality, innovation and dependability. Where our most talented image-seekers go, we aim to be there waiting.

The future is yet to be built, but how we will capture every moment, moving or still, is clear.
Welcome to the new Nikon Z mount system.

NIKKOR Z 24-70mm f/4 S

NIKKOR Z 50mm f/1.8 S

NIKKOR Z 35mm f/1.8 S

NIKKOR Z 50mm f/1.8 S

NIKKOR Z 35mm f/1.8 S

NIKKOR Z 24-70mm f/4 S

Nikon's first 100 years, and the future of optics and imaging

For most living creatures that have evolved on Earth, the first and most important information that reaches their senses is light. The same is true of cameras. How faithfully a lens passes what it receives onto the camera significantly influences what the camera can do. In its 100 years as an optical manufacturer, Nikon has accumulated a range of knowhow by constantly striving to offer truly excellent lenses that can capture subjects as they really appear.

In the same way that a living creature's eye projects what it sees onto the retina for recognition, lenses transform three-dimensional objects into a two-dimensional plane. And that's where light comes into play. Light is visible through reflections, but it isn't tangible. If we could touch it, it would be easier to bend and extend. That's the difficult nature of light, but Nikon's optical technology controls it with great precision. Light brings abundant benefits to the living world, and optical technology uses that light to make our lives better. By increasing the precision of such technology, we can give even more to society.

Prologue:
Optics that create new possibilities for imaging

Let's look at two examples that indicate just how precise Nikon's optics are. As we all know, semiconductors are used in an extensive range of modern technology, from personal computers and smart devices to automobiles and communications. In order to produce them, Nikon's semiconductor lithography system reduces large, complex microscopic electronic circuitry patterns and projects them onto silicon wafer, using a lens with the most precise resolving power in human history. If the entire area of Japan's Kanto and Koshin'etsu regions (about 63,000 km^2) could be reduced and projected onto the size of a regular postage stamp, this lens could resolve objects as small as the white lines of a pedestrian crossing at a level where they would be recognizable. It could be said that the lens has a resolution sharp enough to enable a satellite orbiting the Earth to recognize a pedestrian crossing in Tokyo. Another example is the precise curve of the lens surface. Sharp images require extremely precise control of light, and in order to achieve that precision, the curve of the lens surface needs to be manufactured exactly as intended, without even the slightest variation. Imagine if a single element from a camera lens were enlarged to the size of the roof of Tokyo Dome baseball stadium: the size of variation that we are measuring would be less than the thickness of a single human hair. Nikon realizes this level of precision as a matter of course, but still strives to attain even higher standards. A camera lens is made of many optical parts like the just ones mentioned. Delivering superb optical performance requires extremely high precision in processing and manufacturing — and Nikon consistently achieves this.

In the future, imaging is going to evolve into something more realistic and immersive, and that's before we even consider burgeoning technologies such as VR (Virtual Reality) and AR (Augmented Reality). Optics will play a pivotal role in this trend. No matter how much the resolution of image sensors and the performance of image-processing engines improve, it won't be possible to achieve immersive reality without the contribution of lenses that convey the original source of the image — light. Nikon's optical innovations are born through our constant development and manufacturing of a wide range of products, including cameras, binoculars, telescopes, microscopes, semiconductor lithography systems, measurement equipment, ophthalmic lenses, and optical materials. Our innovations in all of these fields are incorporated into NIKKOR lenses, enabling us to lead the way for the future of imaging with optical technology.

"Nikon was established in 1917 for the domestic production of optics.
We have a strong sense of mission and pride as a leader in optical technology.
Each and every Nikon worker is passionate about the story of optics."

Yasuhiro Ohmura, General Manager, Optical Engineering Division

Nikon Z mount system puts the future of imaging in focus

All around us, people are capturing images and sharing them as part of their daily lives. How will images continue to evolve from now? When image making becomes such an everyday thing, this inevitably creates a desire for more individualistic images. Various other needs emerge, too: people want images that are more beautiful, or that are more fun. What kind of camera system can deliver all the kinds of images that users want? While all of this is happening, display monitors are also becoming much sharper, as they rise from 2K to 4K and 8K. And as the Internet of Things (IoT) and communication infrastructure develop further, enormous volumes of data will be transmitted around the world at incredible speed, changing the way we live. It will also become possible to display images at a higher resolution than the human eye, which will lead to new forms of expression. The Z mount system is a new mirrorless interchangeable-lens camera system that's made for the imaging possibilities of the future.

The Z mount system makes new forms of imaging possible, by further advancing the technologies in which Nikon excels: the lens faithfully conveys information about what's in front of the camera, and the camera faithfully reproduces the information it receives. As a gateway for imaging, the lens will come to play an even more important role in receiving light in as pure a form as possible. Nikon has invested a century of accumulated optical knowhow and its outstanding processing and manufacturing technologies into the new Z mount system, in order to take images into a new era.

The development of the Z mount system started with a simple idea: to capture space as it really is. More than capturing a moment, we aim to record each scene with a powerful sense of immersive reality. With current imaging technology, even something as supposedly immersive as VR (Virtual Reality) can only offer flat-looking images that lack a sense of depth and reality. However, as the volume of image information increases, for instance with higher resolutions, images will become ever more immersive. The time will inevitably come when the virtual worlds of today's video games will feel like real life. What seems possible now will become a reality. The Z mount system is designed to be ready for what comes next. Whether in stills or movies, the new system captures what's in front of the camera with extraordinary realism, offering the same kind of high resolution and tonal gradation that we enjoy with our own eyes. That's the Z mount system.

33 staff sharing one mission:
Nikon ℤ mount system

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Chapter 1:

An innovative mount that connects images to the future

“A lens-mount inner diameter of 55 mm and a flange focal distance of 16 mm: these are the absolute specifications.”

"The 59-year history of the F mount incorporates the engineering wisdom of each era. The new Z mount offers more freedom in designing optics. We will fill it with Nikon's wisdom and dreams."

Hideki Sasao, Product Planning, DCIL, UX Planning Department, Marketing Sector, Imaging Business Unit
Naoki Kitaoka, Department Manager, UX Planning Department, Marketing Sector, Imaging Business Unit
Hiroyuki Ishigami, Section Manager, Product Planning, IL, UX Planning Department, Marketing Sector, Imaging Business Unit

Reliable F mount and NIKKOR F lenses

Since the introduction in 1959 of Nikon's first interchangeable-lens SLR camera, the Nikon F, the F mount has been in continuous use for 59 years, and its history is still being made. We cannot tell if the original designer intended for it to be used for so many years, but it's a testament to the strength of the mount design that it has endured for such a long time. Because we have not changed the mount, users have been able to use their NIKKOR lenses and camera bodies in any combination they like. This rare value of the F mount makes it a precious treasure not only for our users, but for Nikon as well.

When the F mount made its debut with the Nikon F, you still had to control the camera's exposure and focus manually. There have been many advances in camera technologies since then — auto exposure, autofocus, the switch from film to digital, the introduction of FX format — yet even as the technological hurdles became higher, Nikon continued to use the F mount. The engineers from each era demonstrated their ingenuity by working with the constraints of the mount, enabling it to respond to the most advanced technologies of the day. The D5 boasts extensive, highly accurate automated controls, but it shares the same F mount as the original, fully manual Nikon F.

The history of the F mount is also the history of NIKKOR F lenses. If you have one of the latest digital camera bodies, you can capture a variety of images. But unless you have a number of different lenses, you cannot expand your range of expression. When people see a large collection of NIKKOR F lenses, they may ask why so many lenses exist in the first place. Unlike camera bodies, lenses don't go out of date quickly. Whether old or new, each lens gives photographers a unique and different vision. The more lenses exist, the wider the range of expressive possibilities. Nikon's optical designers are also photographers themselves. They have designed and released more than 500 different NIKKOR F lenses from the point of view of photographers, all in pursuit of better images and more attractive expression. And it is only because of our users' support for those efforts that the F mount has been able to continue for such a long time.

Nikon shares a passion for creative expression with its users. There may not be many other examples of a producer-consumer relationship continuing for so long through a single mount. It is never easy for companies to transmit manufacturing technologies and philosophies from one generation to the next. But for Nikon, it is a simple fact of business.

Innovation and continuity: from F mount to Z mount

The continuity of our camera system has long been a top priority for Nikon, as we pursue further innovations in imaging technology. Even when people speculated that it would be impossible to incorporate a full-size image sensor in an F-mount D-SLR, our engineers never abandoned the F mount, and were able to make FX format a reality. Since then, they have introduced numerous F-mount lenses that take full advantage of the potential of FX format.

The ways in which we interact with images have changed dramatically. It's now a commonplace that a small handheld device can produce reasonably good-quality images, while many users treat stills and movies as essentially interchangeable. Image display monitors are becoming larger and sharper too, which creates a demand for ever-higher image quality and higher frame rates in video. There is an increasing need for a new system that creates new possibilities for images, and keeps expanding those possibilities into the future.

Just as the F mount has kept pace with the latest imaging technologies, the new Z mount system will continuously respond to the need for richer image making in years to come. The incredible potential of the new mount will propel imaging to new heights. And with the dedicated mount adapter, users can continue to use their existing NIKKOR F lenses with the new system. The Z mount is a gateway to the new forms of imaging that the future will bring.

Possibilities of the Z mount

Nikon strongly believes that the power of light can shape the future. The new Z mount possesses enormous potential for responding to whatever the future brings, while also meeting today's demands. This potential makes it possible to develop a lens as fast as f/0.95. It enables a groundbreaking high level of optical performance to coexist with the compact form factor that's unique to mirrorless cameras. The things you can capture and express will expand like never before. Moreover, data communication between lens and camera will increase significantly in both speed and volume. This permits information about the lens status, which is constantly changing, to be accurately relayed to the camera body in realtime, which allows major improvements in AF accuracy and image quality. The effect of this is particularly apparent in video shooting. You can expect each frame of the video to have the same high image quality as a still image. Only a superb lens can achieve images that burst with life. The Z mount and Z mount system will deliver exactly that — and at a level that has never been seen before. Naturally, all of this is accompanied by the reliability that professionals need when working in harsh environments. The Z mount extends the boundaries of imaging, and promises even greater creativity in the future.

Large lens mount with 55-mm inner diameter and short 16-mm flange focal distance

We posed ourselves a question: how can we achieve outstanding optical performance, compactness, and ease of use as a camera system, all at the same time? The answer we arrived at for the Z mount was to combine a 55-mm inner mount diameter with a 16-mm flange focal distance. This combination offers enormous flexibility in optical design, giving the Z mount system the potential to exceed users' demands not just now, but also well into the future.

The ability to gather more light through the lens is indispensable for offering high-quality images that can meet the requirements of the era. The larger the inner mount diameter, the better it can fulfill this role. However, an excessively large mount makes a camera system too big to use easily. We strictly calculated the trade-off between these two factors, first by determining the image sensor size, and concluded that the optimal diameter size was 55 mm.

The FX-format sensor used by the Z 7, the first Z series model, can continue to offer well-balanced improvements in three key elements of image quality: resolution, dynamic range, and frame rate. Using a larger sensor than FX format would offer wider dynamic range, but the lenses it required would become too big, and the depth of field would be too shallow to use easily. The FX-format sensor offers a good balance between high image quality, compact size and ease of use.

A lens-mount inner diameter of 55 mm gives plenty of room for lens design that can exploit the benefits of FX format to achieve unprecedented imaging. Having a faster maximum aperture makes it possible to produce images with even more beautiful bokeh and three-dimensional depth — which are strengths of FX format — in both stills and movies. Because a greater volume of light is able to reach the corners of the frame as well as the center, it becomes possible to design lenses with uniformly sharp resolution from edge to edge. A 55-mm inner diameter also allows us to design every focal length and f-stop combination in a lens, not only with the types of lenses that have been possible with the F mount, but also with lenses that have so far been difficult to develop, such as video lenses and super telephoto lenses.

The flange focal distance has also been rigorously determined to convey incoming light from NIKKOR Z lenses to the sensor in the purest form possible. There are mechanical components on top of the image sensor that cannot be removed, such as filters, a mechanical shutter, and a glass cover to protect against dust. Nikon worked hard to reduce the thickness of each of these while testing for optical and physical precision, and even production accuracy, in order to arrive at a flange distance of 16 mm. By doing so, we were able to achieve a new level of optical performance that maximizes the advantages of FX format, all in a compact and highly usable system.

High-speed, large-volume communication that enables accurate frame-by-frame processing

Lens-mount systems are designed to communicate various information between the lens and camera body — such as focal length, camera-to-subject distance and aperture — in order to improve image quality and AF accuracy. As camera resolutions and frame rates become much higher in the future, achieving ever more lifelike images, the key to delivering higher image quality as a system is to communicate all of that information quickly and accurately. Thanks to its high-speed, large-volume communication capability, the Z mount transfers a variety of extremely detailed information between the lens and camera body in real time. This will allow the imaging power of the Z mount system to keep growing from now into the future.

Nikon has been constantly improving image quality at a very precise level, but this kind of high-speed, large-volume communication promises to produce far more dramatic gains. Being able to apply the most effective AF adjustments and image processing to each frame will result in images with a much greater sense of realism. And such accurate frame-by-frame processing will become even more valuable from now on, as continuous shooting speeds for still images increase further.

High-speed, large-volume communication is also effective in video shooting. Even though video uses much higher frame rates than in continuous still shooting, it will be possible to apply highly accurate image compensation to every frame. Imagine you are shooting video in a scene where you move the camera from darkness to a bright place. With accurate frame-by-frame adjustments in real time, you will be able to expect smooth and natural exposure changes, even when the brightness level alters so significantly. The communication capability of the Z mount provides a solid foundation for the future evolution of image making.

Four connecting clips that offer a strong and smooth attachment

We gave a lot of thought to the design of the connecting clips that attach and fix the lens to the camera body. First, it's about strength. Sometimes cameras get dropped or hit against something hard. The mount and clips need to be strong enough to withstand impact from various angles, and not be easily bent out of shape. If the Z mount used three clips like the F mount does, it would need them to be longer and thicker, because of its larger inner diameter. Using three clips with a larger mount would also mean that a lens needed to be rotated more when it was attached or removed. We decided that four clips would offer both strength and easy operation.

In addition, we also determined the optimum positions for clips and screws, as well as the ideal thickness of the mount. The mount and four clips can sustain impact from various angles while dispersing the shock, offering more strength than the F mount. The Z mount's shorter clips reduce the rotation angle when attaching and removing a lens from approx. 60 degrees for the F mount to approx. 40 degrees, allowing easier handling.

Chapter 2:

NIKKOR Z lenses take imaging into the future

“A new era of innovative optical performance has begun, based on the vast accumulated technologies of F lenses.”

"It's very difficult to keep manufacturing products that surpass the NIKKOR lenses our predecessors have made. It's a high-pressure job. But I'm determined to create products worthy of the NIKKOR name."

Hiroki Harada, 1st Optical Designing Section, 3rd Designing Department, Optical Engineering Division
Keisuke Tsubonoya, 1st Optical Designing Section, 3rd Designing Department, Optical Engineering Division

For a new dimension of image making — NIKKOR Z lenses

As image-processing technologies evolve, now even a simple device like a smartphone can give you a certain level of image quality. However, it cannot deliver a natural, three-dimensional look: the images remain flat and two-dimensional. That makes it difficult to achieve truly natural expression — which is an area that still hasn't been fully explored yet. And it can only be reached with superior optical performance. Stills and movies are reproduced on a two-dimensional plane, but using lenses with high optical performance lets you capture natural, impressive images that feel alive and have a sense of three-dimensional space. This concept has been the basis for Nikon's development of NIKKOR F lenses, not just in terms of improving image resolution, but also accumulating the design knowhow to create beautiful background bokeh.
Large and natural bokeh effects that depict subjects with a sense of presence and depth cannot be realized using digital image processing. They can only be produced through the performance of a lens that controls light rays precisely to render an image. Compared to the 47-mm inner diameter of the F mount, the Z mount has a large inner diameter of 55 mm, which is ideally suited for receiving more light. By combining this advantage with Nikon's accumulated design knowhow, NIKKOR Z lenses are able to raise the bar for optical performance in multiple ways. More flexible optical design means future-proof optical performance, higher image quality at close distances, and the ability to attain all this within a compact body. All of these factors expand the boundaries of shooting and image creation.
Nothing changes the fact that optical technologies are essential for achieving superior images. Evolutions in image sensors and image-processing engines are further enhanced by improvements in the optical performance of lenses. NIKKOR Z lenses are attractive imaging tools that promise a new dimension of image quality — through an ever-expanding lineup.

The NIKKOR F lens philosophy underpinning NIKKOR Z lenses

Our users all have individual tastes when it comes to images, for both stills and movies. To respond to their tastes and help them cultivate new ones, Nikon has developed more than 500 types of NIKKOR F lens, and produced a total of over 100 million units. The design knowhow cultivated during this long history lives on in the Z lenses. One of the important factors is reliability. Ever since famous battlefield photographers David Douglas Duncan and Robert Capa started using Nikon equipment, we have delivered superb reliability, by considering various environmental conditions such as temperature and humidity in our optical design. We've aimed to create products that can be used in the most severe situations, based on the diverse shooting conditions of professionals, allowing us to accumulate various knowhow for achieving practical durability. Nikon also places emphasis on manufacturing quality, in order to produce lenses that follow the design specifications faithfully and deliver reliably high optical performance. We strive to satisfy the individual tastes of every customer, by supplying NIKKOR lenses that comply with Nikon's strict quality standards.
Based on the technologies that we've accumulated and refined over many years of developing NIKKOR F lenses, NIKKOR Z lenses will expand the boundaries of image expression even further.

50/1.8 S
24-70/4 S
35/1.8 S

"Technological advances will further increase pixel counts and push image-processing technologies forward. That will demand even more sophisticated optical performance. Based on this assumption, we developed these lenses with an extremely high level of performance – That's the S-Line."

Mami Muratani, 1st Optical Designing Section, 3rd Designing Department, Optical Engineering Division
Yoko Komatsubara, 1st Optical Designing Section, 3rd Designing Department, Optical Engineering Division

Optical performance for the next generation: NIKKOR Z lens S-Line

At the top of the NIKKOR Z mount lens lineup are glasses that were developed in pursuit of a higher level of optical performance: the S-Line. Specifically, the highest-quality Noct enables forms of image creation that nobody has experienced before.
Nikon's optical designers for NIKKOR Z mount lenses are investigating how much it's possible to enhance optical performance with a large-diameter mount. Taking advantage of the greater flexibility in optical design that the new system offers, S-Line lenses deliver a level of optical performance that meets not only current requirements, but also those of the next generation. S-Line lenses incorporate features and specifications that photographers demand from a high-quality lens. In addition to meeting the increasingly strict MTF standards, they also achieve uniform image quality from the center to the periphery of the frame. And by decreasing chromatic aberration, they offer huge improvements in resolution and conveying a sense of depth, meaning photographers can create images that match their intentions. S-Line lenses are designed to deliver outstanding optical performance, so photographers can choose them with confidence, knowing they will keep responding to their image creation needs well into the future.

NIKKOR Z 58mm f/0.95 S Noct: Point-image reproduction and beautiful bokeh at f/0.95

The first Noct had an f/1.2 maximum aperture, making it the brightest lens in the NIKKOR F lineup. But that's not all. Its designers gave it another advantage: superb point-image reproduction capability at the maximum aperture of f/1.2. This may sound easy, but it's actually very difficult to reproduce stars as point images. Sagittal coma flare is likely to occur with large-aperture lenses, meaning that images of stars in the peripheral areas are reproduced as if they have trails behind them, like a comet. While many lenses available at the time could manage to reproduce point light sources as point images when stopped down by several steps, the first Noct corrected the aberration superbly and rendered images closer to their original shape even at the maximum aperture. Named after the word "Nocturne," the Noct was a powerful tool for night photography.

The new Noct inherited the design concept of the original lens, and was developed as a large-diameter Z mount version — but with a maximum aperture of f/0.95. Although there are some f/0.95 lenses on the market, the new Noct delivers point images and a level of resolution that nobody has ever experienced. Despite its extremely large diameter, it can achieve both superior point-image reproduction capability and high resolving power at maximum aperture, thanks to rigorous suppression of lens aberrations.

One of the advantages of a fast lens is its ability to express a sense of space using bokeh effects. The optical design of the new Noct makes the most of its f/0.95 aperture to further expand the possibilities of bokeh, allowing flawless transitions between in-focus and out-of-focus areas in portrait shooting. It's possible to depict a subject's pupil in minute detail, with their skin softly blurred, rendered against a background of beautiful large bokeh. Utilizing the Noct's extremely shallow depth of field and the pleasing bokeh effects it creates, new forms of expression can be achieved, by emphasizing specific details within a scene.

Newly developed ground aspherical lens elements have made an important contribution in designing large-aperture lenses. The use of glass material with an ultrahigh refractive index makes it possible to manufacture ultra-large diameter ground aspherical lenses with a high degree of accuracy, allowing efficient enhancements in optical performance. The newly introduced anti-reflection coating, ARNEO Coat, is also used to effectively suppress the ghost and flare effects that often occur with large-aperture lenses, enhancing the Noct's high resolution.

The new Noct is the answer to the question of how far it's possible to take optical performance using thorough investigation. It lets users experience the forefront of optical design. The Noct is a perfectly crafted masterpiece — it's like a well-tempered Japanese sword that, in the right hands, can slice through iron. Someone who uses it intensively will be able to appreciate quite how incredible it is. This lens is the combined achievement of all the staff involved in optical design, mechanical design, manufacturing technologies and testing technologies. It is the ultimate expression of their accumulated techniques, and sets a new gold standard for performance in large-aperture lenses.

Multi-focusing system for high image quality at close distances

With the evolution of imaging devices with higher pixel counts, such as 4K and 8K monitors and 36- and 45-megapixel image sensors, extremely high-definition images are becoming more and more common. But when you're shooting subjects with high contrast or finely detailed textures, the occurrence of lens aberrations such as color fringing will cause the resolution to deteriorate, destroying the impression of high image quality. One of the goals of the Z mount system is to achieve high image quality in a world of increasingly high pixel counts. That's why it allows high-speed, large-capacity data communication between the camera body and lens, resulting in superior AF precision.

Aberration is conventionally thought to be an issue that's particularly common when shooting subjects at close distances. Some NIKKOR Z lenses employ a multi-focusing system, taking advantage of the space saved during the design of the focusing lenses to provide an optical system that's superior at close range. As a result, it's possible to capture high-resolution images with minimal aberration even in close-up shots.

Nikon's multi-focusing system moves multiple groups of focus lenses at once. If these groups don't move in synch or stop accurately at their designated position, it isn't possible to achieve accurate focus. Nikon uses a stepping motor (STM) to ensure highly precise control. The movement of lens groups is synchronized in millisecond units, and their positions are controlled in micron units.

As seen with the beloved F mount, system compatibility has been a consistent policy for Nikon, and it was also carefully considered when developing the multi-focusing system. To keep pace with the development of imaging devices with higher pixel counts, the algorithms for NIKKOR Z lenses have been tailored so that the multi-focusing system will be usable even with various types of mirrorless bodies that are introduced in the future.

Lens operability improved to ensure high-quality movie recording

In 2008, Nikon introduced the world's first camera with a movie recording function in the single-lens-reflex/single-lens camera category. Since then, it has become easier to record movies with high-quality, cinematic background bokeh, and D-SLR cameras have become popular tools for a wide range of filmmaking applications.

The Z mount system was developed with consideration for the increasing importance of movies, and is designed to ensure lens operability in movie recording. Whereas a still image is completed the moment the shutter-release button is pressed, continuity is important in movie recording. Sometimes it may be necessary to adjust aperture and exposure settings, shift the focus plane, and zoom in and out. And it's important to be able to make the relevant adjustments to camera settings and control changes smoothly, while maintaining continuity.

Every NIKKOR Z lens incorporates a new control ring, to which certain focus- and exposure-related functions can be assigned. When aperture is assigned, it can be adjusted by rotating the ring, in addition to using the command dial on the body. The control ring rotates very smoothly, without the click response of the command dial, allowing adjustment without a loss of continuity. When focus control is assigned to the control ring, focusing speed can be adjusted according to the rotation speed of the ring. Rotating the ring slowly allows precise focusing, while rotating it quickly enables larger changes in focus with only a slight movement. Operation of the ring is extremely quiet, to prevent unwanted sound from being picked up in the recording, and it has an appropriate torque to ensure smooth rotation.

Lenses designed for still shooting sometimes exhibit phenomena such as focus breathing (shifting of the angle of view when adjusting focus) that are undesirable in movie recording, but they have been remarkably improved with NIKKOR Z lenses.

Exterior of NIKKOR Z that's a pleasure to own and use

For over 70 years, Nikon has continued to produce high-performance cameras that are beloved by professionals, together with NIKKOR F lenses. We think that our cameras shouldn't just provide comfortable operability to professionals, but also offer high-quality exterior design that advanced amateurs and entry users can admire.

So what should the exterior of NIKKOR Z lenses be like? Nikon's unified design concept places the large-diameter mount at the symbolic center of the Z mount system, while establishing a sympathetic relationship between the camera body and lens that embodies the pinnacle of image quality. There are three key points here. First: choosing the color and material for the base of the lenses, and the finishing process for the lens exterior. Second: creating a sense of a unified lineup that gives a feeling of reliability and innovation. Third: considering the operational needs of next-generation users shooting both stills and movies.

The same color, material, surface and gloss finishes are used for the large-diameter mount of the body and the base of the lenses. In addition, the same finishing process is applied to the base of every NIKKOR Z lens. All lenses employ clean, straight lines and a metallic texture to emphasize their precision feel and sense of quality. Also, all S-Line lenses feature a silver line on the lens barrel, which glimmers when viewed from a certain angle.

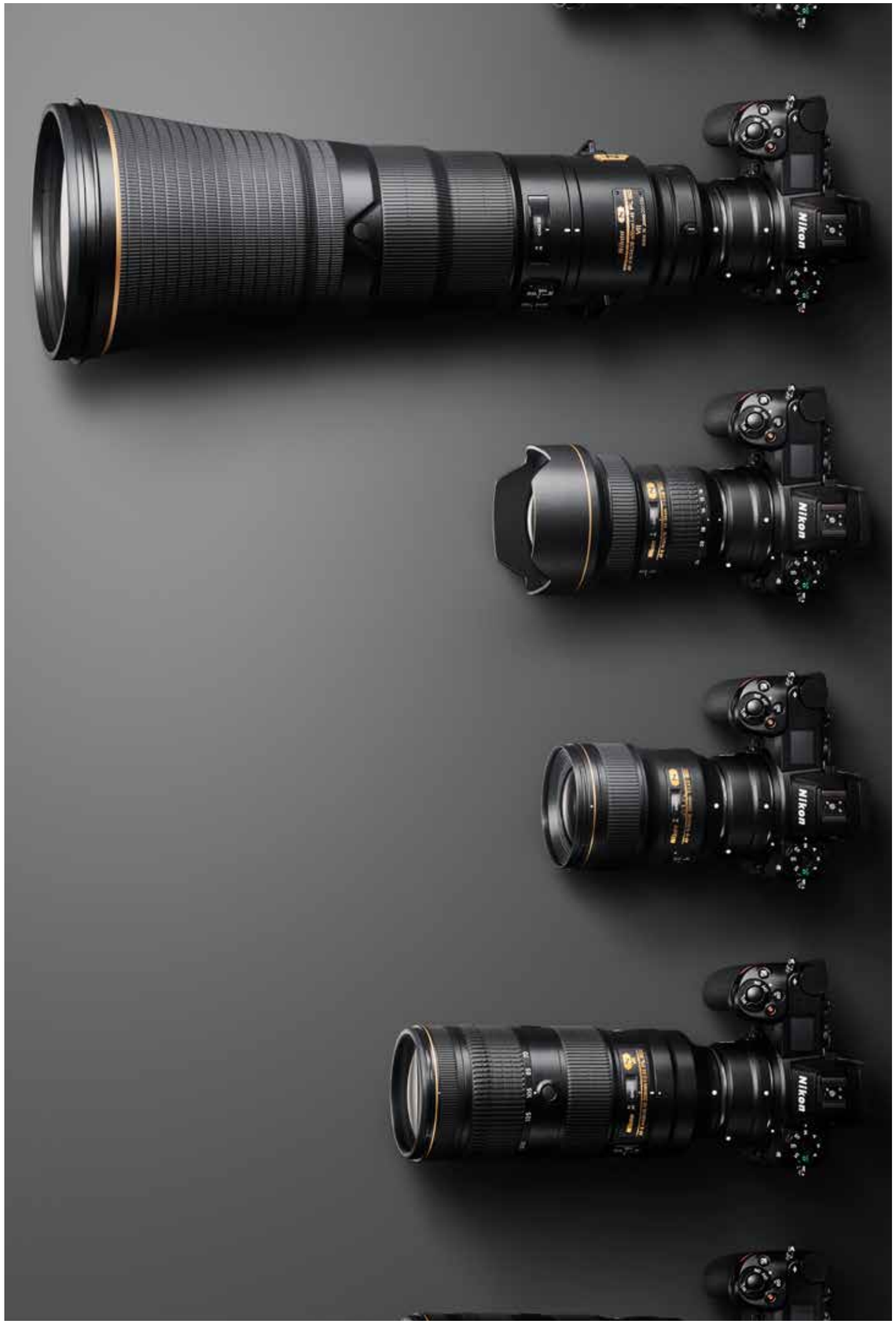
The knurling on the operation rings is minutely grooved to give a sharp impression. To ensure a higher level of operational smoothness and precision, details such as pitch width, depth and groove shape were intensively tested and verified. Lenses were designed so that when the user moves their finger from the base of the lens to the front, the control ring is easy to hold, and the finger is then naturally guided to the rounded zoom ring.

Eliminating unnecessary parts as much as possible, the exterior of the Z mount system was designed in pursuit of the ultimate sophistication, as befits a camera system that embodies the pinnacle of image quality. We aimed to create an exterior design that draws attention towards the lens mount, in the same way that light reaches the mount through the lens.

Mount Adapter FTZ + AF-S Micro NIKKOR 60mm f/2.8G ED

Mount Adapter FTZ + AF-S NIKKOR 14-24mm f/2.8G ED

Mount Adapter FTZ + AF-S NIKKOR 180-400mm f/4E TC1.4 FL ED VR



High-precision Mount Adapter FTZ allows use of NIKKOR F lenses

The Mount Adapter FTZ shows how much Nikon values existing NIKKOR F lens users. F lenses that we have manufactured and sold over the decades come in many different varieties, so they can be valuable tools in helping users express themselves. We developed the new mount to raise imaging to a higher level, but we also considered it important that F lens users could utilize their existing lenses seamlessly with the new system. We don't intend to ignore the beloved lenses that users already own. This Mount Adapter FTZ was designed and developed to offer the fullest possible compatibility with the F mount, so users can enjoy the same superb operability, AF speed and accuracy, and AE performance with the new system.

When attaching an F mount G-type or E-type AF lens, the mount adapter provides AF performance equivalent to that of the F mount via high-speed switching between the F-mount and Z-mount communication systems. D-type AF lenses must be used in manual focus, but focus confirmation with the electronic rangefinder is possible. Moreover, P/S/A exposure modes can be used with CPU lenses. This extensive compatibility is attained thanks to high-speed, large-capacity data communication between the camera and lens, meaning that a wide range of distinctive NIKKOR F lenses can be seamlessly integrated with the new system.

Factors that lead to a deterioration in optical performance, such as the occurrence of ghost effects within the adapter, were carefully eliminated. And the rugged metallic material used for the adapter barrel is designed to match the exterior texture of G-type lenses.

Careful consideration of reliability and durability

Every customer hopes their equipment won't break. Thanks to its experience of providing equipment to professionals, Nikon has learned to put an emphasis on ruggedness. We consider durability to be particularly important for photojournalists and sports shooters. Professionals have to work under the most severe conditions: their equipment may knock against other people's gear, and sometimes they have to keep shooting in strong rain and wind. The reason professional users trust Nikon's accumulated knowhow, acquired through the F-mount system, is that we can provide shooting devices with the performance necessary to succeed in actual shooting situations. By carefully considering how to prevent water droplets from entering the electric system while shooting in the rain, and how to make equipment usable after if it's dropped, Nikon has developed products that are rugged enough to get to the end of a tough assignment. And these basic concepts and knowhow have been inherited by NIKKOR Z lenses.

As the improved movie performance of the Z mount system encourages users to shoot more video, this means they will also be operating the aperture and AF more frequently. So in addition to offering improved optical performance via the large-diameter mount, Nikon has enhanced the reliability of the camera's operational parts, by employing its stricter testing conditions to evaluate whether durability is guaranteed in practical use.

Nikon enforces quality standards at the following three stages. First: when the product is shipped from the factory. Second: until the product reaches the user after shipment. Third: after the product has been used for a long time. For example, it is necessary to employ various measures to ensure that optical performance and operational accuracy aren't affected even if the product sustains an impact during transportation. Nikon maintains a high level of quality with the cooperation of all departments, from design to manufacturing — including parts procurement and management, assembly and measurement — in order to conduct comprehensive assessments.

Quality control to ensure consistent optical performance

In an ideal cycle, Nikon offers a steady supply of high-performance products that satisfy our customers, leading us to keep making better products that can meet their expectations. In order to maintain this cycle, we are constantly raising the bar, taking advantage of our advanced design technologies and refined manufacturing techniques. To ensure a steady supply of high-quality products, Nikon designs products while considering issues from many different aspects, such as how to reduce excess parts, how to establish a simple structure, and how to create products that accurately conform to the design concept. When using plastic parts that need to be produced at a very precise size, we will conduct repeated simulation tests during the development stage. We will also conduct production simulation tests based on the design specifications, giving consideration to individual differences in the way that workers apply force and hold components during assembly. Rather than just aiming for an acceptable level of manufacturing tolerance, we want to create products that conform precisely to our design specifications. From the initial design stage, technicians in the production department work together with design staff to discuss the shape and structure of parts, considering processing flexibility and operational efficiency. Based on feedback from the actual manufacturing site, further investigations and improvements are made until mass production is possible. We consistently strive to ensure that production accurately reflects the design specifications at multiple stages, from design to manufacturing, in order to realize a reliable system for delivering a stable supply of high-quality products to our customers.

Chapter 3:

Precise, compact body that yields overwhelmingly high quality images

“Perfection as a tool was crucially important in the development process.”

"Our intention is not about surprising the market. Rather, this new system represents Nikon's responsibility and determination. We'd like to convey that users will be able to enjoy image-making much more going into the future."

Kazuharu Imafuji, Department Manager, 2nd Development Department, Development Sector, Imaging Business Unit
Kensuke Uchida, Department Manager, 1st Development Department, Development Sector, Imaging Business Unit
Shinsuke Sanbongi, Department Manager, 3rd Development Department, Development Sector, Imaging Business Unit

Reducing size and weight while achieving the essence of a true camera

One of the advantages of mirrorless cameras is their compact size and lighter weight. Even people who find a D-SLR too cumbersome won't hesitate to take a mirrorless camera with them when they go out. However, the large-diameter Z mount and shutter both require a large opening, while the in-camera vibration reduction (VR) system also takes up quite a lot of space. Our engineers cut as much excess space as possible to achieve a smaller size, while ensuring the reliability of the system. On the other hand, focusing too much on making the system smaller may result in it losing the essence of a true camera. What kind of camera should the Z series be? When we discussed this question during the planning phase, we decided it was important for it to be a comprehensive photographic tool. A camera's role is to bring the photographer and subject together. As a photographic tool, it needs to become an extension of the photographer's body, and let them immerse themselves in image making. Only then can it be called a true camera. The controls of the Z series are designed with careful consideration for how they will be used in practice, to prevent any possible confusion for photographers. As ever, we placed the utmost priority on delivering the kind of intuitive operability that professional users demand.

A good tool must not make the user wait. Mirrorless cameras are sometimes criticized for having sluggish electronic viewfinder (EVF) displays, or forcing users to wait while images are processed before they can change settings for their next shot. With the Z series, the display speed of the EVF and memory management during continuous shooting have been meticulously engineered to allow photographers to shoot comfortably at their own pace.
Nikon strongly believes the sensation that a tool imparts to the user is also important. A camera needs to make the user feel good, even when they are just holding it in their hands, but this isn't the kind of value that can be quantified. Our engineers used the camera extensively in order to finesse the body, and make it a camera that appeals to the senses. They checked every detail — including how the grip feels to hold, and the sensation of pressing each button and operating the lever — in order to perfect the design. People use cameras as practical tools, but also for pleasure. Our aim is for the Z series to deliver on both counts.

Robustness that enables shooting in under varied conditions

The Z series aims to offer the same reliability as conventional D-SLRs — or higher — in order to give users the confidence to take advantage of the system's lighter weight, and produce high-quality images in a wide range of scenarios. It scores at the same level or higher than the D850 in terms of body strength, resistance to various environmental conditions including extremely high and low temperatures, and anti-weather and dust performance. Using it in light rain won't cause any problems. The Nikon name is synonymous with reliability, and it's a quality that is evident in the stylish exterior of the Z series.
There are many points that reveal our attention to detail. Repeated shock resistance simulations were conducted to create a camera that can keep shooting even after it is dropped. The tripod connection has been strengthened, for times when the camera is handled roughly while affixed to a tripod and with a heavy lens attached. The main part of the body that encases the image sensor is particularly important, so it is protected from various forces. If the camera sustains a strong impact, the exterior covers are designed to absorb the shock so it doesn't affect the image-making components at the core. The in-camera vibration reduction (VR) system incorporated in the first two Z series models — the Z 7 and Z 6 — compensates vibration by moving the sensor, so it doesn't contribute to body strength. But the bodies are designed to protect the image sensor from shock, using an image-sensor lock system that mechanically locks the sensor when the power or in-camera VR is turned off.
Simulations can achieve a certain level of reliability, but they aren't a total guarantee. To ensure higher reliability, we also have to conduct numerous tests using actual camera bodies. Through years of communication with our customers, Nikon has developed a deep understanding of how photographers handle cameras in the field. We are thinking of professionals and users who venture into harsh conditions when we establish our strict reliability standards, and we strive to meet those standards through rigorous simulations and tests.

Image sensors that maximize next-level optical performance

Nikon has employed customized image sensors in order to maximize the next-level optical performance of NIKKOR Z, and bring out the full potential of the lenses. The beautiful bokeh of the "Noct," with its open aperture of f/0.95, is only possible with an image sensor that can catch incoming light at various different angles. Thanks to the large Z mount with 55-mm inner diameter and the 16-mm short flange focal distance, it's now possible to capture subjects with a greater sense of presence and three-dimensionality, and our goal is to render all of that richer subject information in full. Our engineers have achieved this by customizing pixel performance, optical performance and phase-detection AF pixel distribution. The image sensors of the Z 7 and Z 6 are optimized to maximize both the optical performance of the lens and the processing capacity — the first and second steps in the image-making process. They are designed to work well with every NIKKOR Z lens released in the future and to bring out its pure performance, functioning together with the image processor in a total imaging system. Even F mount lenses can enjoy the benefits. The image sensors are designed to use light efficiently, and yield high-quality images even in combination with legacy lenses. That's one of the strengths of Nikon, which has spent many years developing a comprehensive interchangeable lens system.

The image sensors use back-illumination CMOS sensor technology, which directs incoming light to photodiodes efficiently. The architecture allows fast readout speeds by permitting flexible wiring throughout the back of the sensor, as well as being able to house more circuitry. Using the same copper wiring as in the D850 enables even faster readout, by cutting electrical resistance.

Unlike a D-SLR, the Z series achieves AF using the image sensor. It has to meet numerous requirements in order to deliver both great image quality and great AF performance. Fortunately, Nikon was able to develop a high-performance sensor by drawing on the huge volume of knowhow it has accumulated over the years, in response to countless feedback from professional photographers. The sensor represents another of Nikon's strengths, based on its long experience of working with pros. We conduct repeated manufacturing trials and evaluations during development to meet our stringent standards, which were established in response to demands from professionals. We have solved every problem encountered along the way to achieve the high Nikon quality standard.

Nikon's efforts to expand the range of shooting scenarios are also evident in its image sensor innovations. For example, the Z 7's image sensor achieves base ISO 64, the same as the D810 and D850. ISO 64 is only a 2/3 step down from ISO 100, which is a more common base ISO, but it requires 1.6 times more signal to achieve. And ensuring a sufficient signal without altering the pixel size poses a variety of problems. However, we know there are photographers who want to use a lower ISO setting, whether it's for experimenting with slow shutter speeds in panning shots of sports or using fast lenses in daylight. They may not be in the majority, but Nikon tries to meet the needs of each individual user, by drawing on all of its expertise.

High-performance engine optimal for a high-pixel-count image sensor

One of our goals was to make the experience of using the Z series close to the feel that professional D-SLR users get. The EXPEED 6 image-processing engine employed by the first Z series models, the Z 7 and Z 6, has been developed to achieve this. It processes a range of information — including for generating the electronic viewfinder (EVF) display image, as well as high-pixel-count stills and movies — in a fast and faithful manner that feels more natural to users. The engine boasts a variety of strengths. For instance, the EVF is designed to have minimal display lag, letting it provide a similar feel to an optical viewfinder (OVF) during shooting. Images are processed according to the same principles as D-SLRs, while resolution and noise reduction performance have been significantly improved.

The Z series doesn't just provide pictures that look beautiful at first glance, but also image quality that's high enough to satisfy professionals even after enlarging, cropping or parameter changes. That's what Nikon image-making means. Our accumulated image-processing knowhow for stills is also carried over to movie processing, resulting in high-quality movies. Face recognition performance has also been markedly improved, and AE, AF and image processing are now more tightly integrated. With AF in particular, the camera is able to optimally process various information while carefully monitoring the position of the main subject, for improved tracking performance.

"Nikon cultivated the basics of photographic expression during the film camera era. Digital cameras have unique advantages in being able to use high pixel counts and high ISO. Producing natural-looking images while maintaining a good balance between the photographic basics and digital cameras' advantages is extremely difficult. But we have continued to achieve this by repeating simulations and rigorous evaluations."

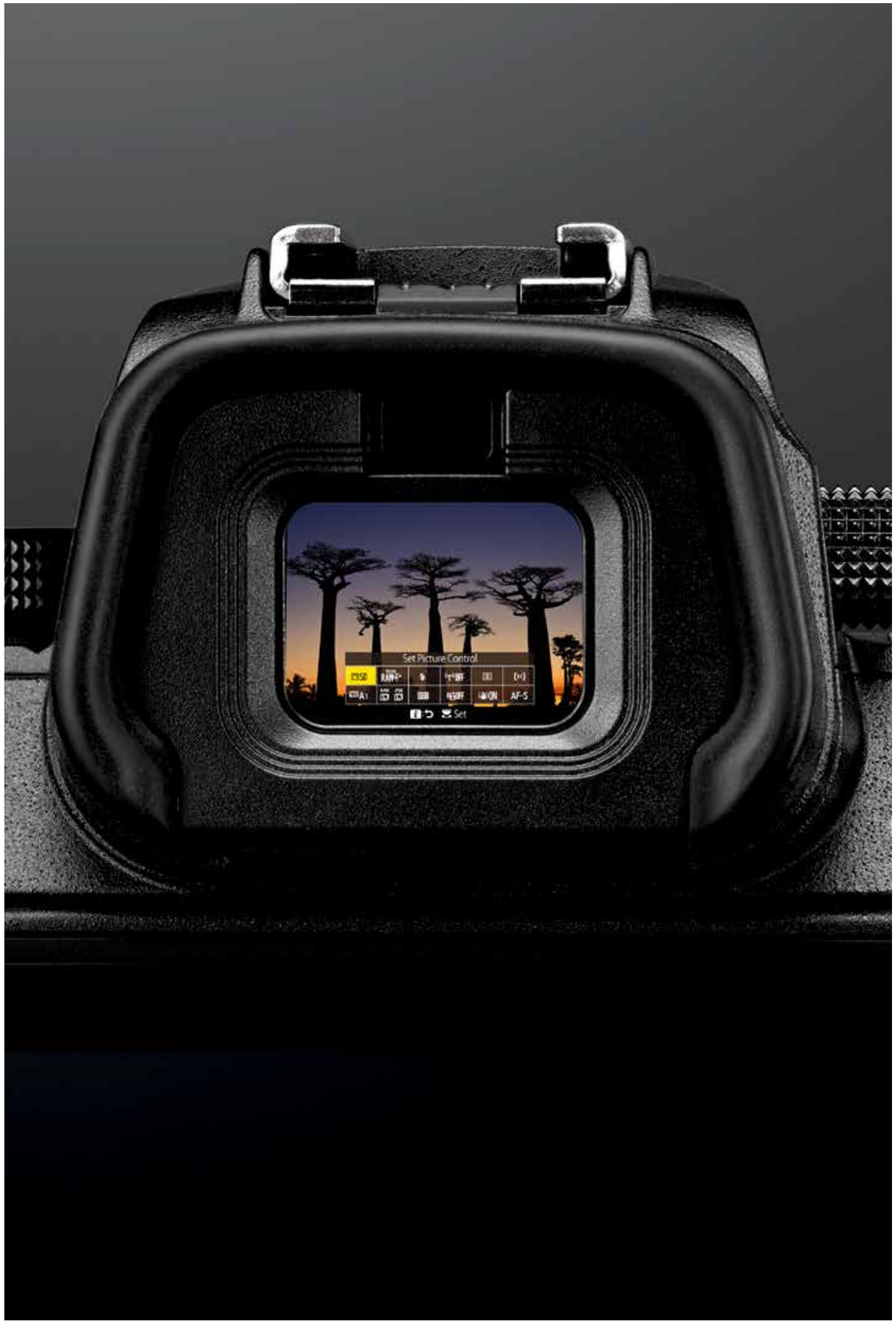
Yuko Hattori, 4th Development Section, 2nd Development Department, Development Sector, Imaging Business Unit
Machiko Azuma, 4th Development Section, 2nd Development Department, Development Sector, Imaging Business Unit

The Nikon Z mount system inherits a legacy of innovation to achieve natural-looking images

Nikon thinks a natural look is important in photography. While working to address the various demands from our users for things like high resolution and reduced noise at high sensitivity ranges, we have also explored how natural it is possible to make pictures look.
The Z mount system adopts image-making principles that Nikon has cultivated during its development of D-SLRs. These in turn are based on Nikon DNA inherited from the era of film cameras. Many of Nikon's staff have a deep understanding of photography, and hold firm beliefs about what a picture should look like, based on that knowledge. This passion and obsession for photography is shared across generations, and has taken root throughout the company. It is another of Nikon's strengths. We have gathered feedback and evaluations from customers over the years, and worked hard to reflect these in the actual image-making process. During development, we envisaged several ideal images that we wanted the new system to achieve. We then repeatedly fine-tuned the image-making process and conducted careful evaluations until we had attained them.
Providing high image quality is also very important. We expect some users to crop aggressively and enlarge their images to 100%. So we have tried to improve image quality even at a minute level that many users may not notice, as well as carefully fine-tuning noise performance, resolution and skin color reproduction at a level where the difference is clear just by reviewing the image on the camera monitor.
While high resolution is important to give pictures a natural look, it's also important to reduce jaggy edges and moire, which are problems that are unique to digital photography. Nikon achieves this by optimizing the fine-tuning process according to the pixel count and image sensor characteristics of each particular camera model. We don't compromise in our pursuit of high image quality.

Dramatically improved movie image quality

While the movie image quality of Nikon D-SLRs has been highly rated, the Z mount system tries to do even better. A movie is comprised of a continuous sequence of still images. But if a conventional system tries to apply the same kind of instant image compensation used for stills to each frame of a movie, there are limits to what it can do.
The Z mount system is able to offer improved image quality in both stills and movies thanks to a number of factors: lenses that provide high resolution throughout the frame, a highly accurate mechanism that maximizes lens performance, and precise AF performance. What's more, fast, high-volume data exchange between the body and lens allows detailed lens information to be used in image processing, consolidating the image quality improvements that innovative optical performance brings.
But it isn't just about image quality: the Z mount system also enhances overall movie quality. While focusing speed and achieving correct exposure are important in still photography, movies put more emphasis on smoothness and fluid transitions. With this in mind, the Z series system comes equipped with selectable AF speeds and focus tracking sensitivities, which can be chosen based on the user's creative intentions. When manual focusing is employed, assigning the focus function to the lens control ring allows users to achieve focus smoothly, as it controls the focus sensitivity and ring rotation speed electronically. Aperture control can also be assigned to the control ring, letting users make aperture adjustments by hand on the lens itself. Moreover, the functions that can be assigned to the control ring may increase in the future.
NIKKOR Z lenses also effectively reduce phenomena such as focus breathing (shifting of the angle of view when adjusting focus). And for the first time in a Nikon camera, the Z 7 and Z 6 are capable of 10-bit HDMI output in N-Log.



Highly accurate hybrid AF, effective for both stills and movies

The Z series employs a hybrid AF system, which uses a combination of focal-plane phase-detection AF and contrast-detect AF, in both still photography and movie recording. The phase-detection AF pixels are effectively distributed throughout the image sensor to deliver accurate AF performance while improving image quality. One of the major benefits of this system is the wide coverage provided by focus points in the image area. With the D5, which previously offered the widest coverage among FX-format models, the focus points cover approx. 55% of the image area horizontally. In the Z 7 and Z 6, the first Z series models, this is significantly increased to approx. 90% when single-point AF is used. The NIKKOR Z lenses already offer superb imaging performance even in the periphery, and accurate AF allows them to render subjects in those areas in sharp focus.

The lens mount's larger inner diameter makes it possible to develop incredibly fast lenses with wide maximum apertures. A faster aperture calls for greater accuracy in focusing, as the depth of field becomes smaller, making it crucial for the Z series body to offer razor-sharp focusing. AF is achieved based on various information, including the focal length, shooting distance and aperture, which is transmitted from the lens to the body in real-time for improved focus accuracy. Nikon engineers responsible for optical design, mechanics and AF have worked side by side to ensure accurate AF performance. While our optical design engineers focused on obtaining high resolution in the image periphery, our mechanical engineers made repeated micro-level adjustments to the 16-mm flange focal distance in order to get the most out of the lenses' optical performance. The camera acquires position information from focus points around the subject to provide accurate focus in the image periphery, while the lens drive system and algorithm are also significantly improved. The Z mount system is designed to attain highly accurate AF as a complete system.

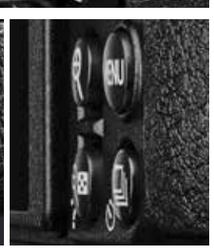
High-magnification, high-resolution electronic viewfinder offering a natural-looking view

How a scene looks through the camera viewfinder is crucial for letting a user concentrate on shooting. Nikon harnessed its rich optical technologies and various display technologies to create an electronic viewfinder (EVF) that is extremely comfortable to use. With approx. 0.8× magnification, the EVF provides a wide view, letting users immerse themselves in the scene.

The viewfinder in a mirrorless camera works by magnifying an image on a tiny display panel. When a high magnification is used, aberration compensation becomes an issue, causing image distortion and deformation in the peripheries. The Z series employs Nikon's unique high-performance optical technologies, including an aspherical glass lens, high-refractive-index resin and anti-reflective coating. These enable it to provide a clear view throughout the frame, with crisp details.

The eyepiece protection window uses a special coating, similar to fluorine coating, which repels dirt while reducing ghost and flare effects. Easy diopter adjustment allows users to achieve an even clearer view. In order to ensure comfortable viewing in any kind of lighting, the EVF automatically adjusts the brightness depending on the subject's brightness. Furthermore, Nikon has put emphasis on making the view look natural, displaying natural colors and brightness while minimizing false colors, in order to reduce eyestrain even after extended periods of use. As the viewfinder image is rendered with rich tonal gradation, subjects look natural even in back-lit situations. During manual focusing, meanwhile, users can enlarge the view within the viewfinder to achieve more accurate focus.

The EVF comes with two display modes. One reflects various camera settings, allowing the user to confirm the resulting image before shutter release. The other is tuned to provide a view that's similar to using an optical viewfinder. Nikon has developed this mode out of consideration for photographers who prefer a view that's close to what they see with their own eyes. We hope many people will get a chance to experience this high-performance EVF for themselves.



Operability explained

A compact and lightweight mirrorless camera has the edge over a D-SLR camera in terms of agility, but sometimes this comes at the expense of operability. The Z series has been created to reconcile these two conflicting demands — for portable size and effortless handling.

The mirrorless camera's form factor may be smaller, but the size of the hand holding it remains the same. Nikon has achieved exceptional usability during its long history of developing SLR and D-SLR cameras. By seeking to deliver that same level of usability within a small body, we started to see the form that the Z series would take. Although there are fewer operation buttons on the body due to its smaller surface area, we rigorously conceived it so that anyone familiar with Nikon's D-SLR cameras could start using it right away, without even reading the instruction manual.

In order to ensure a streamlined workflow, we needed to incorporate operational components such as buttons and dials and arrange them within a limited space. It was extremely difficult to position all these components so as to avoid accidental operation by users. The slight rearrangement of a single button could ruin the entire layout.

Each button has been intricately adjusted in size, height and angle, according to the movement of fingers, to allow comfortable operation within a limited space. Deciding the optimal arrangement of components requires a deep understanding of the camera's operation, which only people who have used it extensively will have. Nikon has its own test shooting team, and also elicits feedback from professional users in order to accumulate the knowledge required to ensure superb operability. Each product development member approaches the task based on a shared understanding of that knowledge. When using buttons and dials, the tactile response, such as pressing and rotating, is also important. By employing an original customized rubber switch for the buttons, we made them comfortable to handle, while also enabling quieter operation during movie recording. This exceptional tactile quality isn't mentioned in the specifications, but it is a distillation of Nikon's DNA, accumulated over a long period.

GUI that facilitates natural operation

We've refined the camera GUI to take full advantage of the characteristics of the Z series, while making an effort to ensure an easy transition for users coming from D-SLRs. One of the major changes is the i menu display, which allows quick setting changes during shooting. With D-SLR cameras, it has only been possible to set pre-assigned items to the i menu, but with the Z series you can now customize it according to your applications. Although the compactness and streamlined body design of the Z series mean there are relatively fewer buttons, you can access all the functions you need instantly and flexibly. And whether you're operating the i menu while shooting with the EVF or looking at the info display on the monitor, the menu is structured in the same way to minimize the chance of mistakes.

We believe that the most important thing for the EVF is to ensure that both the image and information display are easy to view. To let the user concentrate on shooting, we have to be careful that the displayed information doesn't distract from the image. The EVF makes it possible to display information and change settings more flexibly than when using an optical viewfinder. However, the user needs to move their line of sight significantly in order to look around the entire viewing area of the EVF. That's why we positioned the setting display in the lower central part of the frame, where the user can look at it naturally — reducing eye fatigue and resulting in a smooth workflow.

With the Z series, it is easier to shoot videos than ever before. Since it is necessary during video shooting to confirm if there are any unwanted objects in the frame, we took extra care not to display unnecessary information that would distract from the image. Users can save separate i menu display and custom button settings for stills and videos, for seamless transition between the two.

Another aspect of GUI design that we paid particular attention to is easy viewing across a broad range of lighting situations. Users can operate the display even under harsh light or in a dimly lit scene such as a theater. In particular, we improved the contrast of each element in the menu display and simplified the information structure. We also made a variety of subtle improvements to enable users to control the camera just as they intend, such as adding a display to confirm exposure-related information during playback.

"The Z mount system is the 'genuine article.' It is a distillation of Nikon's DNA, accumulated over a long period of time. The Z mount system is the essence of the future, condensed."

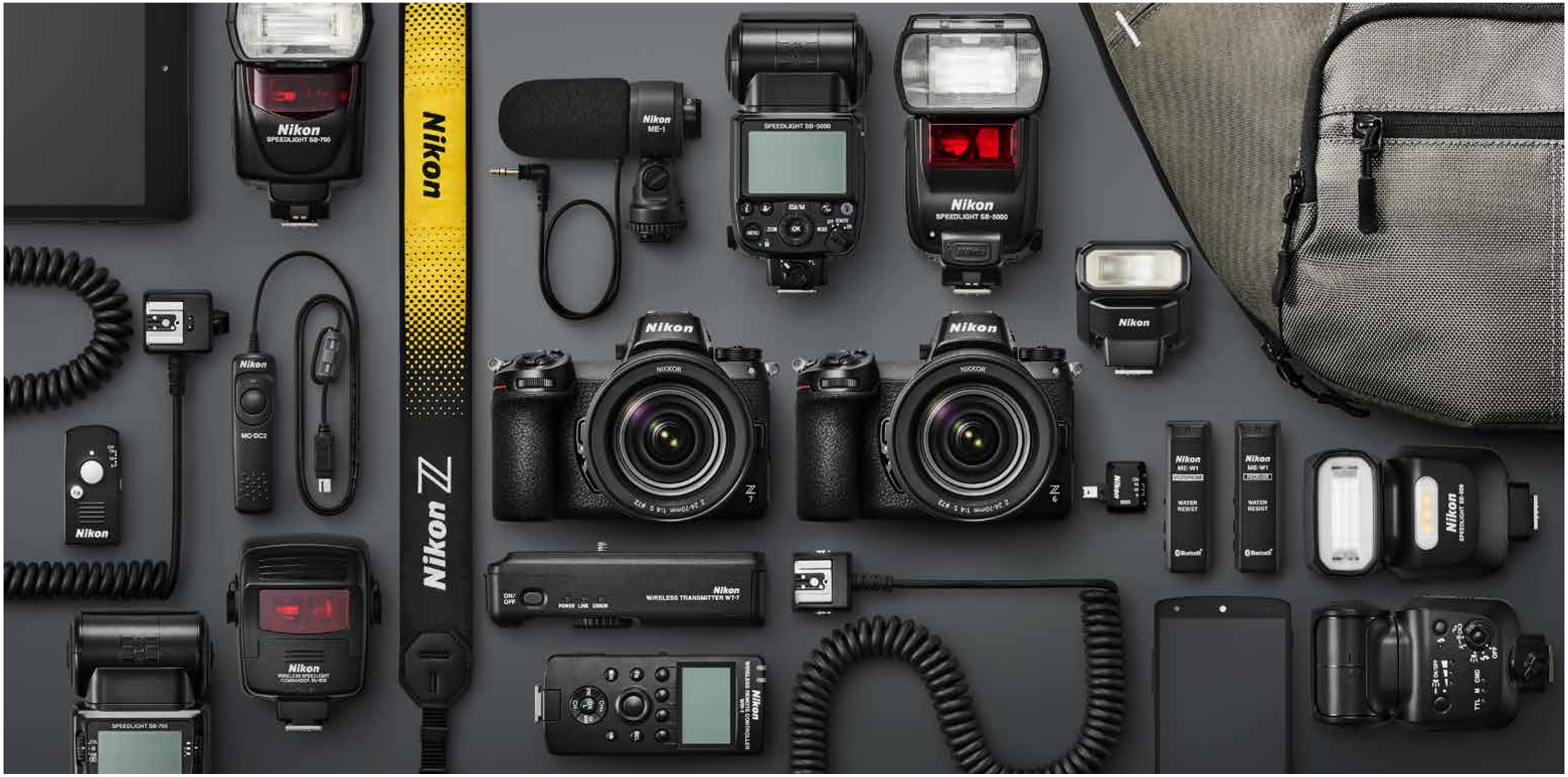
Makoto Imamizu, Product Design, Industrial Design Department, Imaging Business Unit
Kenji Baba, Section Manager, Product Design, Industrial Design Department, Imaging Business Unit
Kanoko Terashima, Graphic Design, Industrial Design Department, Imaging Business Unit

A pleasure to own, a joy to use — Body design and styling of the Nikon Z series

The large-diameter mount is the core of the new system, providing a new level of optical performance. In order to make the greater potential of the new system as tangible as possible, we symbolically treated the mount as the heart of the design. We then constructed other components, such as the EVF and grip, at an optimal size and shape to create the overall body design. The EVF unit protrudes from the rear of the camera to prevent the user's nose from interfering with the display while looking through the viewfinder, letting them concentrate on shooting. And the form factor of the Z series has been created by pursuing the "essence" of mirrorless. By making the top of the grip higher than the rest of the body, the camera is comfortable to hold — and even has space for the little finger — while maintaining a compact overall size. The mount uses a metallic ring with the same texture as the lens root, symbolizing the large-diameter mount at the core of the system, while expressing the spectacular performance achieved through the synergy of lens and body.

The packaging design expresses the future of the Nikon Z mount system using light

We have used a gold color scheme for the packaging of Nikon film SLR and D-SLR cameras for over 50 years. To mark the release of the new Z mount system, we have overhauled the packaging for both D-SLR and Z series bodies, to express our resolve to keep advancing into the future. The design motif is "light" — our core competence — depicted in yellow. The light emanates from the bottom of the packaging, which is now colored black, and envelops the product — projecting the impression that users can expect a new and richer imaging experience. This yellow gradation also shows that Nikon will continue evolving in the future, while the new simplified design makes the Z logo stand out. Although the main role of the packaging is to protect the product, we'd also like it to give users a sense of the reliability, integrity and sophistication that have long been Nikon hallmarks, as well as the state-of-the-art technology that the Z mount system offers, and the future advances promised by the new design.



Connectivity

The Z series incorporates a communication function for transferring images to a smart device or computer via Wi-Fi and Bluetooth. Although it is currently possible to shoot, transfer and share images, the communication environment is changing rapidly, and new features will be added in the future that further expand the imaging experience. For example, in addition to the existing automatic image transfer feature, the camera may be able to automatically select the images that users need according to their preferences and send them to a smart device or computer, or change the destination depending on the shooting situation. Furthermore, as technology continues to develop, what was previously one-way communication may become more interactive in the future.

System expandability

Because the still image shooting capabilities that Nikon has prided itself on require a relatively limited range of accessories, Nikon's original accessories were able to cover a wide range of shooting applications. Many users want accessories that can push their creative boundaries. To respond to their needs, we think system expandability, including equipment and accessories, is essential.

As with conventional D-SLR cameras, it is possible to use accessories such as Speedlights and stereo microphones with the Z series. However, movie shooting involves more processes than still shooting and requires a wider range of combinations of equipment and accessories according to users' workflow. Because movie equipment employs highly specialized technology, it is important for us to collaborate with specialist manufacturers, instead of covering the entire range by ourselves. With regard to peripheral equipment and accessories, we will select partners to devise a reliable system that gives users the power to do much more creatively. And when it comes to features that directly affect the final image, we will strive to ensure their quality through our own products, in order to guarantee users' satisfaction.

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